PROFESSIONAL ENGINEER

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FALL ISSUE

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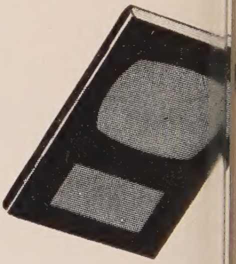

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TO QUESTION

Professional Engineer

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M. E. McIVER, Editor

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ask A.A.E.

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Services rendered by National Headquarters are many and varied. Information is supplied on all branches of engineering, and technical subjects to individuals, banks, companies, societies, libraries, committees, and governmental agencies.

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To be well posted, the staff must be informed and this we endeavor to do by extensive research, reading, keeping up to date on all manner of business interests that affect the engineer. In addition, we have through years of experience built up a valuable "know how," which makes possible quick and intelligent handling of inquiries.

In this issue we publish brief reviews on some of the late technical books for your information.

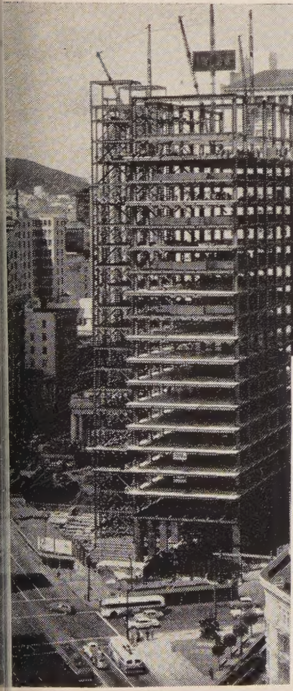
Vere You Ever a Sidewalk Superintendent?

A Club for San Francisco Members

by Norma E. Webb, San Francisco, Calif.

Show me a builder who can't spot sidewalk superintendent at twenty ces and I'll show you a man who s built neither hut nor skyscraper. you raze a building, people stop d watch. And when you lay the undation, they are there, busily pervising the workmen's activities om their sidewalk stations.

Haas & Haynie, contractors for new 20-story Crown Zellerbach Corporation headquarters in San Francisco realized in the early stages of work that they were playing to a full house of volunteer sidewalk superintendents. Naturally, San Franciscans were interested in the construction of the building that has been called "the world's most modern and functional office building." Who wouldn't be? It seemed reasonable to guess that the side-



To the left: The Crown Zellerbach Building in San Francisco, California. The steel work was completed in June. Bleachers can be seen to the left of the Building.

Below: Sometimes the workmen watch the Sidewalk Superintendents, and vice versa. This is a workmen's view during lunch period.

os by Morley Baer

walk superintendents peering through the fences outnumbered the working crews of both Haas & Haynie and Bethlehem Pacific Coast Steel.

A builder-management meeting was called. As if by magic, a solution followed. Festive 100-seat bleachers were installed on the building site in a safe location, thereby establishing the official headquarters for the San Francisco Sidewalk Superintendents Club.

Crown Zellerbach President, A. B. Layton and San Francisco Mayor George Christopher presided at the noontime ribbon-cutting ceremony and a capacity crowd attended, including the press.

At the dedication it was announced that "membership is rigidly restricted to those capable of writing their signature on the membership cards, although special dispensation is arranged for those who cannot." Containers dispensed club membership cards entitling holders "to all the privileges, courtesies, benefits and facilities of the club for the construction watching season of 1958."

The cards disappeared almost as fast as they were put into the containers. Though no actual count has been kept, it is rumored that there are approximately 50,000 card-carrying members in the club today, including of course, those mailed all over the country to non-residents.

The SFSSC has its own custom designed stationery and progress bulletins are posted at strategic points on the construction site for the convenience of members. In dition, the bulletins are sent to 550 nearby offices whose occup are the inevitable victims of noise on the project. The result been tolerance and even enjoym since they are included person in the Crown Zellerbach scene.

The bulletins also include vital information as the fact the Bethlehem Pacific Coast wear red hats and Haas & Ha men wear yellow ones. Other usually belong to wandering S walk Superintendent Club m bers. Many of the elder mem know H. J. Brunnier, who is structural engineer on the pr by sight—even without his ha

Why should the constructio a new office building in down San Francisco stir up such e ment? Hertzka & Knowles & S more and Owings & Merrill, as ated architects who designed Crown Zellerbach Building can you a variety of reasons.

On a wedge-shaped site, cove approximately 1⅓ acres, they designed a spacious structure r 320 feet above street level completely open floor space fre columns or other obstructions.

Its modular construction div every floor into small units 5½ 5½ feet, each fully supplied its own light and air-conditio This will offer a maximum flex ity in designing office space thr the use of movable partitions.

Crown Zellerbach will occupy proximately 50% of the build while the remaining area will vide office space for other firm

A two-level garage will be con- ructed beneath the main building ith a 150-car capacity. All building rvices will be housed in an adjoin- g core to one side.

The building will cover approxi- ately 255,000 square feet or 15,000 uare feet per floor, with a glass d aluminum exterior.

An eight-foot-thick concrete mat ured 30 feet below street level pports its steel columns, and it ll be completely fireproofed and -conditioned. It has grown out the deepest excavation ever at- npted in downtown San Fran- co. Its base columns, weighing proximately 2500 pounds per t, are the heaviest structural steel mbers ever used in building con- uction west of the Mississippi ver.

The main building will occupy y one-third of the land area. The t of the grounds will be a public plaza with beautifully landscaped gardens, trees, walkways and a reflecting pool. A circular one-story bank building will occupy one corner of the site in dramatic contrast to its towering neighbor.

To date no one has claimed the honor of being founder of the Sidewalk Superintendents Club. It may have been one of the natural results following former President J. D. Zellerbach's statement: "We have planned for a more convenient place to work; we also wanted to make a suitable contribution to the architecture of the community."

When the building is completed in the Spring of 1959, both of these objectives will have been accomplished. The San Francisco Sidewalk Superintendents will still be there—the first to point with pride to their now world-famous building, for its beauty—and to its builders for making it possible.

How to Become a Professional Engineer

ere's a book that you should have if are contemplating becoming a istered professional engineer. The or is John Constance, a mechanical ineer with M. W. Kellogg Company, has given a great deal of thought he subject, and in the past has pre- ed various questions and answers on stration.

early a half a million engineers still licensed can benefit most from this -published book, and as we have tioned in the past it is becoming e and more necessary that engineers ster with their respective boards. book is a comprehensive guide for unlicensed engineers-in-practice young graduates.

e author lists and clarifies the n basic requirements for licensure; marizes in plain terms the various state registration laws; and shows clear examples of how examining boards evaluate the experience of the candidate.

How to prepare an application is explained by Mr. Constance, also how to prepare for written and oral examinations and how to avoid emotional stress during tests. What to look for, including pitfalls, in refresher courses, is explained. Applicable to all states.

There is a chapter on the engineer's seal and its use, and extensive appendixes list names and addresses of state board secretaries, accredited schools, and recommended texts. The author is a registered professional engineer in New York and New Jersey and has taught for New York University, the U.S. Army, and a number of professional societies. (see page 23)

Engineers . . .

Measure Up To Your Civic Responsibilities

1. Urge the importance of comprehensive planning, in order that needs of the community may be anticipated and relative importance of public improvements clearly understood.
2. Insist upon creation of boards to plan programs of public improvements, replacing uncoordinated projects now directed by legislation.
3. See that registration laws are enforced and that all technological positions are filled by professional engineers.
4. Demand civil service protection of engineering judgment and integrity.
5. Organize in local and state societies, available for counsel on technological matters considered by other civic agencies.
6. Affiliate with Chamber of Commerce in order to cooperate in initiating programs and supporting those sponsored by civic agencies.
7. Open engineering society meetings to the public when community problems are discussed.
8. Help make every dollar of taxpayer's money count for civic efficiency.
9. Be individually alert in observing smaller needs of your community.
10. Remember that every educated citizen bears a responsibility in a democracy to guide public opinion.
11. Establish close relations with service clubs, with the press, in order to fulfill this responsibility.
12. Cultivate the art of describing technological projects and their social and civic significance in terms understandable by the laity.

Want To Be an Executive Engineer?

M. E. McIver, Editor
and National Secretary A.A.E.

NGINEERS are by training and experience analysts. They are accustomed to analyze everything with which they come in contact. et with all their power of analysis, they have, generally speaking, ailed to analyze themselves or their profession, which may, to a large egree, account for their lack of executive ability.

From time to time the American Association of Engineers has sureyed the industrial field, questioning executives as to their frank inions on the subject, and publishing its findings in PROFESSIONAL NGINEER. Quite significantly the comments of captains of industry have een in line with what the Association has been telling engineers ever nce its inception that in order to assume the duties of an executive n engineer must have a broader knowledge of economics and general siness fundamentals.

For too many years the technical end of the profession has been erstressed, although during the past years engineering schools have ken cognizance of this major defect in the engineer's education and ve added courses in economics. Still the average engineer does not ve a true perspective of the relative importance of the technical phase engineering to the economic and business phase in our modern instry.

Moreover, because engineers are individualistic in nature, they have iled to bring about any coordination within the ranks of their own ofession, with the result that, in certain branches of engineering, pecially with the younger members of the profession, a tendency tord unionism has sprung up. The primary purpose of these unioninded engineers seems to be increased compensation. The attitude of e American Association of Engineers has always been that proper cognition and more adequate compensation must come from within d not from without the profession; that it must come from the engineer's own initiative and ability to deliver the goods; that it mu come through a broadening of the engineer's horizon beyond the na row technical limits of his own profession; that it must come throug the engineer familiarizing himself with the fundamental principles modern business and economics.

Importance of Economics

Today perhaps more than ever before, positions for men with sp cialized training coupled with a broad knowledge of economics a fundamentals of business are many. If engineers combined with the technical training, the qualifications of an executive, they would be demand for practically every executive position. The demand for capab engineering talent having imagination and executive capacities will i crease as we move forward in this highly scientific and technical worl in fact, the complexities of industry today make it almost imperative th a proportion of engineer-employees be capable of attaining executi rank.

There are certain qualities that executives must have, and they a not qualities which captains of industry have found, apparently, to especially characteristic of engineers in general.

Industry bids for men with executive experience and exhibits a w ingness to train men with executive potentialities for responsible jobs. has begun to define those potentialities very clearly. These are some the things that industry considers essential in an employee destined executive rank:

1. Sound training in fundamentals.
2. Knowledge of the cost of engineering operations and an app ciation of the relation of that expense to the profit possibilit in an entire enterprise.
3. Foresight. Ability to foresee trends, new techniques, ne methods.
4. Poise and tact and force that contribute to authority, so th an engineer may be spokesman for all technological person in the most important company conferences and in negotiati with outside agencies where technology is the paramount issu

Personality and Tact

An essential attribute of a real executive is a certain intuitivene understanding of the abilities, moods and general reactions of subo dinates, associates, and superiors. Industry has indicated time and ti again that it recognizes the value of this attribute in executives and future executives. Engineers who can work diplomatically with oth departments, who have good personality, tact, ability to get alo well with men, who have practical as well as technical minds are tho who make a success of their careers.

Never before has there been a greater need for cost consciousne n engineers. Employers need men who can see the cost of engineering in elation to the profit possibilities of the entire enterprise. They need ngineers who can see their costs in relation to those of competitors. s one employer so ably stated: "An engineer who makes a successful xecutive is the man who gets himself away from the detail; who realizes hat he must not be such a good engineer that he cannot see the financial spect of the undertaking and cannot realize the structure or plant which e is building must pay its way by return on investment." In our highly ompetitive business world what does anyone want with a design of anyhing no matter how perfect it may be from an engineering standpoint, at cannot be utilized, commercially, at a profit?

Attitude and Ability

Engineers must be able to put their ideas over in words—written nd oral expression are both required, often extemporaneous statements. hey must be able to sit in on conferences and keep in mind the prac- cability and cost of every plan suggested in so far as engineering is ncerned.

There is also the matter of attitude toward people. Ability to cooper- e and secure cooperation. The engineer who strives to be an executive ust have confidence in himself and in his work, confidence even in the esence of the highest executives of the company. Poise, naturalness, se of manner, authority—they pay off for these at the first window n your right.

Engineering training is a steppingstone toward an executive posi- on. Develop the business and commercial side of a well-grounded, gressive engineer, and he will make an outstanding executive.

Keep Up-to-Date

Technological development is moving fast in this electronic age and uch dependence for the future advancement of civilization depends pon members of the scientific and technological professions. It is not reasonable to predict that in the future a larger percentage of our ecutives will be drawn from the ranks of engineers who have been ucated along commercial and executive lines. This means that it is ore important than ever for engineers to keep abreast of developments t only in their own fields, but in fields allied to it. Opportunities for vancement lie in anticipating the new products, discoveries and proc- ses and being prepared to lead in their promotion.

Engineers need to keep posted by reading technical and trade jour- ls, attending engineering and scientific society meetings, especially al groups where they are privileged to participate in chapter activities, scuss new techniques, social and economic problems, and in many in- nces get valuable experience in public speaking.

Getting the Most Out of Those Meeting

by Ernest W. Fair

"I should have stayed at home watching television!"

This statement (or one a good deal like it) has been made by man an engineer as he wearily made his way homeward from a professiona social, club, lodge, church or other meeting with a distinct feeling having thoroughly and completely wasted the evening.

Sometimes this just can't be helped; we all know there are suc gatherings at which it is utterly impossible to acquire anything usefu However, these are a lot fewer than we think. The people who sta those meetings usually put a great deal of work into them and actual present a lot of material and ideas. Too often the fault is entirely o own when we go away from them empty handed.

Realizing this we have asked a number of people who secure a l of benefit from such meetings how they go about doing it; and from th suggestions here are some ideas we can use.

First off, we were told, it is of the utmost importance that one into such a meeting, particularly those of a business nature, with absolutely clear mind. One must be prepared to focus complete attent on what is going on and what is being said and nothing else.

Leave your hobbies and your problems at home

"The man who comes to his meeting worrying about a couple troublesome problems, his golf score, how he's going to meet the ne car payment or anything else, has little chance of doing himself a good," one old timer told us, "When a man's mind is loaded with oth problems he is lucky if he even hears what is being said. The hum mind just isn't capable of doing a good job on more than one thing a time.

"Experience has taught me that if I can't go into a meeting wi the ability to concentrate one hundred percent on the agenda I may ju as well go to the fights or a movie — fact is, I'll get a lot more good out doing either one!"

The next point is in practicing the art of concentration on what being said and done. This calls for development of a habit of becomi interested in everything that is said and the ability to listen throu many boring statements in order to find the one really worthwhile.

If one's concentration is so poor that one starts wondering wheth or not the speaker has a toupee, how many men in the audience we ootball players in their youth or the ability of the PA system to stand up —then one is apt to get very little out of anything being presented.

"How can I be expected to concentrate on such trivia?" a friend nce asked me. "There isn't a thought in anything that fellow has said o far and the chances are there won't be anything in what he says from ow on."

Once in awhile, we have to admit, such a statement is correct but ve are the losers in the long run if we fail to give this inept speaker our ull concentration. No matter how much trivia is being dispensed he an't help but give us at least one good idea in his speech. More important, however, is that in letting up on concentration toward one speaker or emonstration we are going to let up on the next—and that second resentation may be a very good one.

Such ability to concentrate is something that can be developed into habit. When this has been done we will automatically give the subject ur fullest attention all of the time and never miss the really important nformation when it does come along.

Some of us have the ability to turn such concentration on and off s though it were controlled by an electrical switch. That is an asset to e prized for it enables one to obtain rest and relaxation while the peaker is covering familiar ground. However it comes only from long ractice which is built, in its early stages, on full and complete concentration all of the time.

Here is another point that is very important. It is the simple requirement of always making sure we have a small notebook and pencil with s wherever we go. Many times each reader has heard something of alue at such a presentation with great delight; only to find four hours ter his memory had failed in noting a most important set of figures or atement. We just can't depend on memory for these things.

Making an occasional note is a reporter's trick we can all use; a ngle phrase or set of figures so noted can often recall, days later, veral passages made in a presentation. The memory ability most of possess is seldom operating full time; it must have starters. Such otes serve as the prompters which bring forth the whole file in our ivate memory bank many weeks later.

There are such things as finding the right spot to sit in which can d or detract from what we are able to secure from any meeting. If we e surrounded by a noisy bunch of individuals who make it impossible hear everything that is being said it will pay us to get up and move. If ere is someone nearby who distracts us considerably (a nervous person, a beautiful girl, etc.) then we will get much more out of that meeting also moving.

Finding a spot where there are no lights in our eyes, where we can ve a clear view of the stage or platform, where there are no hot or cold discomforts—all of these things can add not only to our enjoyment the affair but our ability to get something worthwhile out of what happening.

Many engineers also find they get more out of any type of meeti by taking an active working interest in what the speaker is developin As the presentation goes along they argue mentally with what is bei said, develop points further on the basis of their own knowledge, et they seek out those points of greatest interest and develop them in something of their own. This creates definite fixed memories they car with them for a long time into the future.

This business of evaluating what is going on also deserves mentio If, in listening to a presentation, we decide then and there that the who thing is utter and stupid nonsense the chances are we have built up roadblock for the entire evening. If we set aside our judgment and st give the speaker full concentration we can assimilate ideas for later (a very possibly much better) evaluation. In the meantime we have ke an open and interested mind throughout the entire evening. That ea roadblock is certain to exclude something of importance that occur afterwards in the meeting.

"Long ago I developed an approach that has rewarded me ha somely," a friend told us the other day, "by just making up my m before I went to any meeting that I was going to take home one wor while thing from that meeting. Soon I found myself working hard find ideas in what was being said and done. In all the years since I never failed to find at least one such idea by really looking for it; an know that I missed a lot before then by not having developed th approach."

He has something there; we know from our own experience. We attended some pretty boring meetings in our time but through appli tion of the foregoing suggestions all of them have developed somethi worthwhile for us.

Besides—we're kind of tired of television anyway!

Multor and the Sumax

Two clever items have reached the reviewer's desk, from West Germany, namely, the Multor and the Sumax.

The Multor is a slide rule in circular form which fits easily in the pocket. Its graduations have a length of ten inches and the calculations are exact in spite of the small size of the device.

The handy pocket calculator has be introduced successfully under the tra mark Sumax. The apparatus has double-sized mechanism for automa addition and subtraction, and it is t double-sided construction that guar tees a very simple manipulation. E to use and occupies very little space.

D. B. Steinman Retained for Bridge in Pakistan

The Government of Pakistan has re- ined Dr. D. B. Steinman, internation- ly eminent bridge engineer, to design new bridge to carry railroad and ghway over the Indus River between ohri and Sukkur, about 260 miles rtheast of Karachi. The main span ill be 850 feet. Dr. Steinman will in- stigate the arch, continuous, and sus- nsion types for this crossing.

The new bridge will replace the old ansdowne cantilever bridge of 820 et main span, carrying a single rail- y track, built fifty years ago from the ans of the British engineer, Sir A. M. ndel, for the Indian Government.

Dr. Stienman, who recently com- ted the $100,000,000 Mackinac Bridge Michigan, is currently engaged on design and construction of bridges Iraq and Turkey, in addition to this w engagement in Pakistan, also three w international bridges between the ited States and Canada. His profes- nal record has covered 440 bridges five continents.

ittenden Honored

A presentation and address was ten- ed a well-known mining figure in the rse of an informal affair at Noranda lf Club, Noranda, Province of Que- , Canada, when H. A. Chittenden was ored by more than 100 fellow em- yees of Noranda Mines Limited and er friends on the occasion of his rement.

Mr. Chittenden, who was chief drafts- n at Noranda Mines Limited for ny years, is highly regarded both fessionally and personally, and this made evident in the course of the g" party at the Golf Club where ny friends paid tribute to his long successful career.

Long Service

ince his graduation from University 906 Mr. Chittenden has been asso- ed with companies in 17 of the ted States and Mexico prior to ing to Canada in 1916 when he was loyed in the Sudbury camp. Later was with Hollinger for six years, then came to Noranda where he has served ever since, for an unbroken period of 29 years.

In his address, L. O. Cooper, plant engineer, paid tribute to Mr. Chittenden's service and presented him with a handsome lawn umbrella, under which he may rest in the shade from his many years of valued effort.

Mr. Chittenden has been a member of the American Association of Engineers for many years, and we know that he will make good use of his time and abilities in the years ahead.

Carl Painter Heads Utah Chapter, A.P.W.

The Utah Chapter of the American Public Works Association elected Carl E. Painter, consulting Engineer for the Waterworks Equipment Company, of Salt Lake City, as its president to serve in 1958, at its meeting held in conjunction with the Golden Anniversary of the Utah Municipal League.

Mr. Painter is well known to the members of the American Association of Engineers, since he has been an active member almost since the inception of the Society, serving as Director and President, and member of many of the Association's national committees.

Serving with Mr. Painter are B. E. Mellenthin, Assistant City Engineer, Salt Lake City, as 1st Vice President; and William D. Core, Superintendent of the Street Department of Ogden, 2nd Vice President.

Benline Receives Award

Arthur J. Benline, Technical Director, New York State Building Code Commission, and a member of American Association of Engineers for many years, was guest of honor at the annual dinner given recently by the Society of Construction Superintendents, Inc., at the Park Sheraton in New York.

Mr. Benline was presented with a plaque by Anthony Ardizzone, President of the Society, for his outstanding contributions in the field of construction during 1957.

The Society's membership is largely made up of men who have the actual "on-the-job" knowledge of the construction industry, and has long been interested in developing and improving all phases of the field.

Recent proposals to increase construction as an anti-recession measure, has had a profound effect on the activities of the Society.

Claude E. McLean at the Helm of Phoenix Chapter, A.A.E.

Claude E. McLean, Sr., is the president of A.A.E.'s Chapter at Phoenix, Arizona. Leigh O. Gardner, is first vice president, Charles Beck, second vice president, and Daniel M. Wier, secretary and treasurer.

Mr. McLean is a well known engineer in the Southwest. He is owner and president of Arizona Testing Laboratories, Inc., which serves not only the Southwest, with offices in Phoenix, Tucson, and Flagstaff, but has clie in Europe, Japan, Canada, South Am ica and South Africa.

Mr. McLean is a registered prof sional engineer, was born in So Carolina and was graduated from Cle son College in 1908 with a Bachelor Science degree in chemistry. He ser in World War I as an infantry offi and as an officer in the Chemical W fare Intelligence in France, and was tired with the rank of Major.

The President of Phoenix Chapter active in many engineering societ He has been a member of the Ameri Chemical Society for 45 years, and 1958 chairman of the Arizona Coun of Engineering and Scientific Asso tions. He has been an active mem of the American Association of En neers for many years, as well as m other well-known societies and ass tions.

Irrigation and Hydraulic Design

Here is an extremely useful, well illustrated handbook for irrigation engineers, to be used as a working manual for those facing irrigation design problems. The book was written by Dr. Serge Leliavsky, Ph.D., M.I.C.E., M., Am. Soc. C.E., who was formerly director, Designing Service, Reservoirs and Nile Barrages Department, Ministry of Public Works, Cairo; Chief of Designing office, Irrigation Projects Department, Ministry of Public Works, Cairo; Professor of Irrigation Design, Royal School of Engineering, Guiza, Cairo; Head of the Bridges Department, Egyptian State Railways, Cairo; Head of the Hydraulic Section of Lock and Dam Construction Works on the Dnieper Falls, Russia.

In Vol. 2 (Irrigation Works) Dr. Leliavsky has given the profession a book that is most complete, containing a number of formulae, methods and design theories which have been collected, replenished, yearly revised and kept up-to-date, during the author's forty years' technical life.

In the 864 pages will be found specific design problems and theory for irrigation works, including regulators o sizes and descriptions (from the sm est canal inlet to the Nile Barra siphons, weirs, and other canal str tures; the planning and designing perennial irrigation-canal bridges, fixed and movable, and aqueducts.

This is a book that should be on desk of every one working in this fi A constant reference book with m pullout illustrations giving nume practical examples. Price $60.00.

Vol. I was published in 1955 and tained the more general fundamen of design work, in particular concer percolation in the granular foundati beneath hydraulic structures and earthen banks, tail erosion in its v ous aspects, and hydraulic flow in ca and rivers, both uniform and non- form. Price $25.00.

Vol. III, now in preparation, will with multiple-purpose, hydraulic st tures, such as the various types of he works on alluvial rivers, from standpoints of design, execution economics, the electrification of exis head works and the hydraulic po stations in general, etc.

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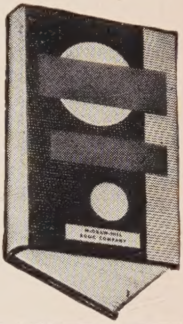

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